

"Tar" and Nicotine Content of Cigarette Smoke in Relation to Death Rates¹

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Over 1,000,000 men and women who enrolled in an epidemiological study in 1959-1960 were (with few exceptions) traced for 12 years. They all answered questionnaires on cigarette smoking and various other factors at time of enrollment; and survivors answered repeat questionnaires on three later occasions. In this analysis, cigarette smokers were classified by the amount of tar and nicotine delivered by the brand they usually smoked at the start of each of two 6-year periods. Among subjects who smoked the same number of cigarettes a day, total death rates, death rates from coronary heart disease, and death rates from lung cancer were somewhat lower for those who smoked "low" tar-nicotine cigarettes than for those who smoked "high" tar-nicotine cigarettes. The death rates of subjects who smoked "low" tar-nicotine cigarettes were far higher than the death rates of subjects who never smoked regularly.

INTRODUCTION

Many years have passed since the following was firmly established by a large number of epidemiological studies carried out by independent investigators in this country and abroad (U.S. Public Health Service, 1964): First, and most important, death rates are higher in smokers than in nonsmokers and increase with degree of exposure to tobacco smoke. Among the diseases involved in this relationship are: (1) lung cancer and cancer of several other sites, including the lip, tongue, mouth, larynx, pharynx, esophagus, and urinary bladder; (2) coronary heart disease, stroke, and aortic aneurysm; (3) chronic bronchitis and emphysema; and (4) several other diseases (including peptic ulcers).

The age-specific lung cancer death rates of men who smoked cigarettes regularly was found to be about ten times as high as the lung cancer death rate of men who never smoked; and this ratio was considerably higher among men who smoked 40 or more cigarettes a day. Expressed in the same terms (i.e., mortality ratios), the coronary heart disease death rates of male cigarette smokers were found to be about 1.5 to 3.0 times as high depending upon age and amount of smoking as the coronary heart disease death rate of nonsmokers. From this it might be concluded that lung

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